

This listing of the claims replaces any and all prior versions and listings of claims in the application:

LISTING OF THE CLAIMS

1. (Currently Amended) A method of identifying an object having identification information, said identification information being used to verify the identity of the object, said method comprising:

determining at least one characteristic of a magnetic field of at least a portion of a tag, thereby obtaining a first specific magnetic signal, wherein the tag comprises a host material having a disordered plurality of pores, said host material being at least substantially non-magnetic ~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a magnetic material, and

storing signal information relating to said first specific magnetic signal, said stored signal information forming the identification information of the object.

2. (Original) The method of claim 1, wherein the step of determining at least one characteristic of said magnetic field of the at least one portion of said tag comprises a measurement of said characteristic of the site-specific magnetic field over a surface of said portion of the tag, thereby mapping a magnetic fluctuation signal.

3. (Original) The method of claim 1, wherein storing signal information relating to the first specific magnetic signal comprises storing data corresponding to the at least one characteristic of said magnetic field over said portion of the tag.

4. (Original) The method of claim 1, further comprising:
subsequently determining the at least one characteristic of the magnetic field of said portion of the tag, thereby obtaining a second specific magnetic signal, and
comparing said second specific magnetic signal with the previously stored identification information.

5. (Original) The method of claim 4, further comprising:
magnetizing the tag prior to each determination of the at least one characteristic of the magnetic field of said portion of the tag.
6. (Original) The method of claim 1, further comprising:
recording information on the tag by magnetizing the magnetic material present in groups of pores into poled domains, or
patterning pores of the tag with magnetic material.
7. (Original) The method of claim 1, wherein the tag is attached to the object to be identified after obtaining the first specific magnetic signal.
8. (Original) The method of claim 1, wherein the tag is attached to the object to be identified before obtaining the first specific magnetic signal.
9. (Original) The method of claim 1, wherein the tag comprises a substrate supporting the host material.
10. (Original) The method of claim 9, wherein the substrate comprises material selected from the group consisting of metal, silicon, silica, glass, plastic, ceramic and combinations thereof.
11. (Original) The method of claim 1, wherein the host material is selected from the group consisting of alumina, zeolites, group III-V materials, polymers, silicon oxide, zinc oxide and tin oxide.
12. (Original) The method of claim 1, wherein the host material comprises nanotubes.
13. (Original) The method of claim 12, wherein the nanotubes are cast within a second host material.

14. (Original) The method of claim 1, wherein the magnetic material is selected from the group consisting of Fe, Ni, Co, their alloys, oxides, mixtures and combinations thereof.

15. (Original) The method of claim 1, wherein the pores of the host material have a diameter between 100 nm to 500 nm.

16. (Original) The method of claim 1, wherein the tag further comprises at least one coating layer.

17. (Original) The method of claim 1, wherein said at least one characteristic of the magnetic field of the portion of the tag is highly dependent on the disorder of the tag.

18. (Original) The method of claim 17, wherein the disorder is due to a feature selected from the group consisting of pore size, shape and orientation of pores, percentage of pore filling, crystal orientation of magnetic material in the tag, and combinations thereof.

19. (Withdrawn; Currently Amended) A method of identifying an object having identification information, said identification information being used to verify the identity of the object, said method comprising:

determining at least one characteristic of an electric or electromagnetic field of at least a portion of a tag, thereby obtaining a first specific electric or electromagnetic signal, wherein the tag comprises a host material having a disordered plurality of pores, said host material being at least substantially electrically insulating ~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a substantially electrically conducting material and wherein at least some of the substantially electrically conducting material is connected to a voltage source, and

storing signal information relating to said first specific electric or electromagnetic signal, said stored signal information forming the identification information of the object.

20. (Withdrawn) The method of claim 19, wherein the step of determining at least one

characteristic of said electric or electromagnetic field of the at least one portion of said tag comprises a measurement of said characteristic of the site-specific electric or electromagnetic field over a surface of said portion of the tag, thereby mapping an electric or electromagnetic fluctuation signal.

21. (Withdrawn) The method of claim 19, wherein storing signal information relating to the first specific electric or electromagnetic signal comprises storing data corresponding to the at least one characteristic of said electric or electromagnetic field over said portion of the tag.

22. (Withdrawn) The method of claim 19, further comprising:
subsequently determining the at least one characteristic of the electric or electromagnetic field of said portion of the tag, thereby obtaining a second specific electric or electromagnetic signal, and

comparing said second specific electric or electromagnetic signal with the previously stored identification information.

23. (Currently Amended) A method of producing a system for object identification, said method comprising:

determining at least one characteristic of the magnetic field of at least a portion of a tag, thereby obtaining a first specific magnetic signal, wherein the tag comprises a host material having a disordered plurality of pores, said host material being at least substantially non-magnetic ~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a magnetic material, and

storing signal information relating to said first specific magnetic signal, said stored signal information forming the identification information of an object to be identified.

24. (Withdrawn; Currently Amended) A method of producing a system for object identification, said method comprising:

determining at least one characteristic of the electric or electromagnetic field of at least a portion of a tag, thereby obtaining a first specific electric or electromagnetic signal, wherein the tag comprises a host material having a disordered plurality of pores, said host material being at

least substantially electrically insulating ~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a substantially electrically conducting material and wherein at least some of the substantially electrically conducting material is connected to a voltage source, and

storing signal information relating to said first specific electric or electromagnetic signal, said stored signal information forming the identification information of an object to be identified.

25. (Currently Amended) A tag carrying identification information, said identification information being used to verify an object's identity, said tag comprising:

a host material having a disordered plurality of pores, said host material being at least substantially non-magnetic ~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a magnetic material, and at least one coating layer covering at least partially a surface of the ~~non-magnetic~~ host material.

26. (Original) The tag of claim 25, wherein said coating layer comprises a material which has a bulk yield stress greater than 50 MN/m².

27. (Withdrawn; Currently Amended) A tag carrying identification information, said identification information being used to verify an object's identity, said tag comprising:

a host material having a disordered plurality of pores, said host material being at least substantially electrically insulating ~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a substantially electrically conducting material, and at least one coating layer covering at least partially a surface of the host material.

28. (Withdrawn) The tag of claim 27, wherein said coating layer comprises a material which has a bulk yield stress greater than 50 MN/m².

29. (Currently Amended) An object having a tag carrying identification information, said identification information being used to verify the object's identity, said tag comprising:

a host material having a disordered plurality of pores, said host material being at least substantially non-magnetic~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a magnetic material, and at least one coating layer covering at least partially a surface of the ~~non-magnetic~~ host material.

30. (Withdrawn; Currently Amended) An object having a tag carrying identification information, said identification information being used to verify the object's identity, said tag comprising:

a host material having a disordered plurality of pores, said host material being at least substantially electrically insulating~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a substantially electrically conducting material, and at least one coating layer covering at least partially a surface of the host material.

31. (Currently Amended) A system for object identification, said system comprising:

a tag carrying identification information, said identification information being used to verify an object's identity, wherein said tag comprises a host material having a disordered plurality of pores, said host material being at least substantially non-magnetic~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a magnetic material, and a data storage medium for storing data corresponding to a magnetic signal obtained from at least a portion of the tag.

32. (Withdrawn; Currently Amended) A system for object identification, said system comprising:

a tag carrying identification information, said identification information being used to verify an object's identity, wherein said tag comprises a host material having a disordered plurality of pores, said host material being at least substantially electrically insulating~~host material having pre-formed pores~~, wherein at least some of the disordered plurality of pores of the host material have been filled with a substantially electrically conducting material, wherein at

least some of the substantially electrically conducting material is connected to a voltage source,
and

a data storage medium for storing data corresponding to an electric or electromagnetic
signal obtained from at least a portion of the tag.